DRAFT

ENVIRONMENTAL ASSESSMENT

Goldfish Removal near Big Sandy, MT

June 7, 2023

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List of Abbreviations

AFS	American Fisheries Society
ARM	Administrative Rules of Montana
CDFG	California Department of Fish and Game
CDPR	California Department of Pesticide Regulation
DEQ	Montana Department of Environmental Quality
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FWP	Montana Fish, Wildlife & Parks
KMnO4	potassium permanganate
MCA	Montana Code Annotated
MEPA	Montana Environmental Policy Act
MNHP	Montana Natural Heritage Program
PPE	Personal Protective Equipment
TCE	carcinogen trichloroethylene
USEPA	United States Environmental Protection Agency

Environmental Assessment

The Montana Department of Fish, Wildlife and Parks (FWP) has prepared this Draft Environmental Assessment (EA) in accordance with the requirements of the Montana Environmental Policy Act (MEPA). The purpose of an EA is to identify, analyze, and disclose the impacts of a proposed state action. This document may disclose impacts that have no required mitigation measures, or over which FWP, more broadly, has no regulatory authority.

Local governments and other state agencies may have authority over different resources and activities under separate regulations. FWP actions will only be approved if the proposed action complies with applicable regulations. FWP has a separate obligation to comply with any federal, state, or local laws and to obtain any other permits, licenses, or approvals required for any part of the proposed action.

This EA was prepared for the following action:

PROJECT NAME: Goldfish removal near Big Sandy, MT	
LOCATION: Unnamed pond on Frenchman Creek	**COUNTY:** Chouteau
PROPERTY OWNERSHIP: ☐ **FEDERAL** ☐ **STATE** ☐ **COUNTY** **X PRIVATE**	
EA PREPARER: Cody Nagel	**DATE ISSUED:** 06/07/2023

I. Compliance with the Montana Environmental Policy Act

Before a proposed *project* may be approved, environmental review must be conducted to identify and consider potential impacts of the proposed project on the human and physical environment affected by the project. The Montana Environmental Policy Act (MEPA) and its implementing rules and regulations require different levels of environmental review, depending on the proposed project, significance of potential impacts, and the review timeline. § 75-1-201, Montana Code Annotated ("MCA"), and the Administrative Rules of Montana ("ARM") 12.2.430, General Requirements of the Environmental Review Process.

FWP must prepare an EA when:

- It is considering a "state-proposed project," which is defined in § 75-1-220(8)(a) as:
  (i) a project, program, or activity initiated and directly undertaken by a state agency;
  (ii) … a project or activity supported through a contract, grant, subsidy, loan, or other form of funding assistance from a state agency, either singly or in combination with one or more other state agencies; or
  (iii) … a project or activity authorized by a state agency acting in a land management capacity for a lease, easement, license, or other authorization to act.
- It is not clear without preparation of an EA whether the proposed project is a major one significantly affecting the quality of the human environment. ARM 12.2.430(3)(a));
- FWP has not otherwise implemented the interdisciplinary analysis and public review purposes listed in ARM 12.2.430(2) (a) and (d) through a similar planning and decision-making process (ARM 12.2.430(3)(b));
- Statutory requirements do not allow sufficient time for the FWP to prepare an EIS (ARM 12.2.430(3)(c));
- The project is not specifically excluded from MEPA review according to § 75-1-220(8)(b) or ARM 12.2.430(5); or
- As an alternative to preparing an EIS, prepare an EA whenever the project is one that might normally require an EIS, but effects which might otherwise be deemed significant appear to be mitigable below the level of significance through design, or enforceable controls or stipulations or both imposed by the agency or other government agencies. For an EA to suffice in this instance, the agency must determine that all the impacts of the proposed project have been accurately identified, that they will be mitigated below the level of significance, and that no significant impact is likely to occur. The agency may not consider

compensation for purposes of determining that impacts have been mitigated below the level of significance (ARM 12.2.430(4)).

MEPA is procedural; its intent is to ensure that impacts to the environment associated with a proposed project are fully considered and the public is informed of potential impacts resulting from the project.

II. Background and Description of Proposed Project

This section includes background information and a description of the proposed project including the responsible party, the type of proposed action and the anticipated schedule of the proposed project.

Name of Project: Goldfish removal from a private pond near Big Sandy, MT

Background and Description of Proposed Project:

The conservation and inherent value of native and nonnative gamefish in Montana is substantial. A self-sustaining population of goldfish, an aquatic invasive species, has established itself in the affected pond and threatens the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. This goldfish population resulted from an illegal introduction that likely started with just a few individuals. The population is now established, with several year-classes of goldfish ranging from 1-10 inches in length being observed, indicating natural reproduction is occurring and overwintering conditions are favorable.

The threat of this goldfish population to continue to reproduce and potentially distribute to downstream locations must be addressed to eliminate the risk of competition with native fish and expansion of this nonnative invasive species in the Big Sandy and Milk River watersheds.

FWP proposes to remove the illegally introduced goldfish population from the affected pond near the town of Big Sandy (Figure 1, Figure 2). FWP would use the piscicide rotenone to eliminate distribution of the invasive goldfish population to downstream locations. Once treated, no fish would be re-introduced by FWP into the pond as no historic public fishery exists in the pond. The estimated commencement date for the proposed project is August 1, 2023. This date may be pushed back later to ensure water conditions are conducive for treatment.

Rotenone Treatment Area: The treatment area will be focused on the pond. Two additional areas that will be treated based on water conditions are in the arms at the upper end of the pond. At these locations there is a spring and some ground water influence that will require treatment in addition to the pond itself. The treatment area will end at the dam (Figure 4).

Method of Fish Removal and How Rotenone Works: The chemical proposed for removal of fish uses rotenone as its active agent. Rotenone is a naturally occurring substance derived from the roots of tropical plants in the bean family such as the jewel vine (Derris spp.) and lacepod (Lonchocarpus spp.) that are found in Australia, Oceania, southern Asia, and South America. Rotenone has been used by native people for centuries to capture fish for food in areas where these plants are naturally found. It has been used in fisheries management in North America since the 1930's.

Rotenone kills fish by interrupting the Krebs Cycle in individual cells. Rotenone is applied to the water and enters the fish through the gills. It is effective at very low concentrations with fish because it is readily absorbed into the bloodstream through the thin cell layer of the gills. Mammals, birds, and other non-gill breathing organisms do not have this rapid absorption route into the bloodstream and are not affected by consuming treated water or dead fish at concentrations used in fisheries management.

Treatment Rate: Waters within the project area would be treated with 5% active ingredient rotenone. Label guidelines for pond treatments range from 3.0 and 4.0 ppm. The exact concentration of the selected formulation will be determined in the field, by conducting bioassays on caged fish, with the intent of determining the lowest and most effective dose that will meet the project objective of eradication of goldfish in the pond. Studies (Marking and Bills 1976) show goldfish can survive exposure to levels much higher than prescribed by the label, which is why we anticipate a treatment near 4.0 ppm.

The unnamed pond has a volume of 4.49 acre-feet. Per label recommendations, approximately 6 gallons of liquid rotenone is required to achieve 4 ppm treatment concentration at full pool. If water levels can be drawn down 2-2.5 acre-feet, approximately 2.7-3.3 gallons of rotenone would be required to achieve the desired treatment concentration within the pond. Additional spot treatments will occur upstream of the pond in any standing pools and wetted areas the goldfish could be present and seeking refuge. A drip station would be used to treat the spring water entering the pond. Rotenone could persist in the pond for up to one week, depending on water temperature, sunlight, alkalinity, and the rate of untreated water entering the pond from contributing sources (i.e., spring).

Access: The pond is relatively remote but easy to access. Public access to the treatment area will be closed during the application of rotenone. Signs will be placed at the dam, trails, and other avenues where access to the treatment area can be obtained. Access within the treatment area will be restricted for up to 30 days. FWP will coordinate with the landowner to ensure treatment of the pond occurs at a time which doesn't impact ranch operations.

Method of Application: The application of rotenone will be dispensed in the pond via boat, backpack sprayer, and drip station. Backpack sprayers would be used to apply the rotenone in the pool areas upstream and to any backwaters of the pond. The drip station would be used to treat water entering the pond from an upstream spring. The materials and equipment would be transported to the site by truck. Treatment would last for approximately 6-8 hours.

Deactivation: The pond being treated is located within an open basin (i.e. some surface outflow). Post treatment, water entering the pond via upstream spring, ground water, and/or precipitation would dilute the rotenone. Also, rotenone degrades naturally (photodegradation, dilution, organic uptake, and thermal), however deactivation with potassium permanganate (KMnO4), which neutralizes rotenone, may be required based on water levels at the time of treatment and the ability to divert the spring during treatment. Potassium permanganate will be available to deactivate during the treatment. If needed, potassium permanganate would be mixed with water in a tank and dispersed throughout the pond via a pump from the shore or boat depending on water levels. If water rises rapidly and begins to flow out the trickle tube, a detox drip station would be set up immediately below the pond to neutralize water escaping via the trickle tube.

It is required as per the FWP's piscicide policy (2017) that a block net be installed at the end of the deactivation zone to prevent dead fish from drifting downstream of the project area. The block net will be placed across the trickle tube.

Fate of Dead Fish: Dead fish that surface as a result of the rotenone treatment would be collected and disposed of according to FWP protocols. In lakes, 70% of rotenone-killed fish sink to the bottom (Bradbury 1986), where they are not visible. Bacteria and aquatic invertebrates promote rapid decay of fish carcasses, and nutrients contributed from dead fish stimulate recovery of zooplankton and other aquatic invertebrates. Terrestrial scavengers contribute to the disappearance of carcasses, and piscicide-killed fish do not present health risks to organisms consuming them. Dead fish generally decay beyond recognition within 1 to 2 weeks.

Project Duration: If all the fish are not removed during the first treatment, it may be necessary to implement additional treatments to achieve the desired objectives. The metrics we would use to determine success include visual, trap, and gill net surveys. If goldfish remain after the first treatment, a second or third treatment may be conducted as soon as conditions and affected ranch operations allow for subsequent treatment to occur.

Monitoring: Monitoring is an important component of this type of management activity (Meronek et al. 1996). Recovery of benthic macroinvertebrate species will be evaluated over two successive years by collecting kick net samples at two sites in the treatment area.

Project Location: The project is in Chouteau County, approximately 12 miles from Big Sandy, Montana (Figure 1). The unnamed pond located on private land is in the Big Sandy drainage, which flows to the Middle Milk River, near the City of Havre (Figure 2).

- Legal Description
    - Latitude/Longitude: 48.13228 -109.85776
    - Section, Township, and Range: 01, 27N, 14E
    - Town/City, County, Montana: Big Sandy, Chouteau, Montana

Affected Area / Location of Proposed Project: The pond is located on Frenchman Creek and is surrounded by dry hay land and grasslands. Riparian and wetland habitats are also present upstream and around the pond. The pond has a surface area of 1.26 acres at full pool. Its maximum depth is 10 feet and is approximately 4.49-acre feet in volume. There's one perennial spring that supplements the pond and a screened trickle tube on the dam provides the only outlet (Figure 3).

- Affected Area
    - Developed/residential 0 acres
    - Industrial 0 acres
    - Open space/woodland/recreation 0 acres
    - Wetlands/riparian areas 3 acres
    - Floodplain 0 acres
    - Irrigated cropland 0 acres
    - Dry hay land 10 acres
    - Forestry 0 acres
    - Rangeland 0 acres
- Location Maps

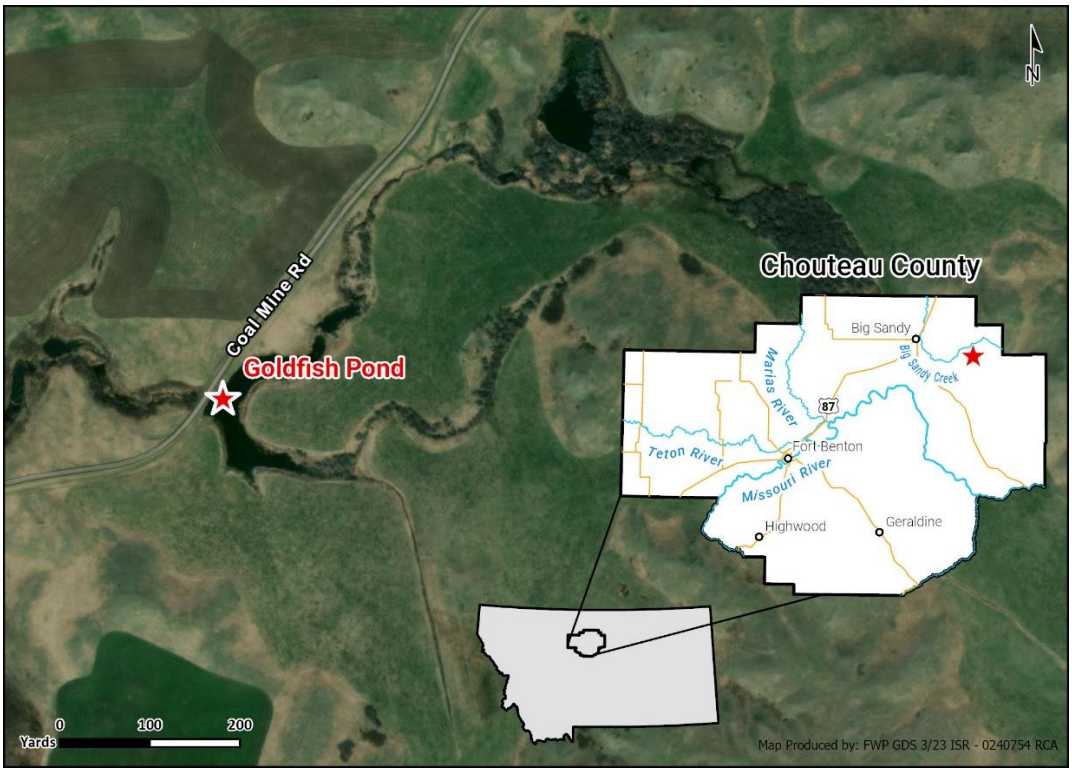

Figure 1. Location of goldfish population and nearby towns.

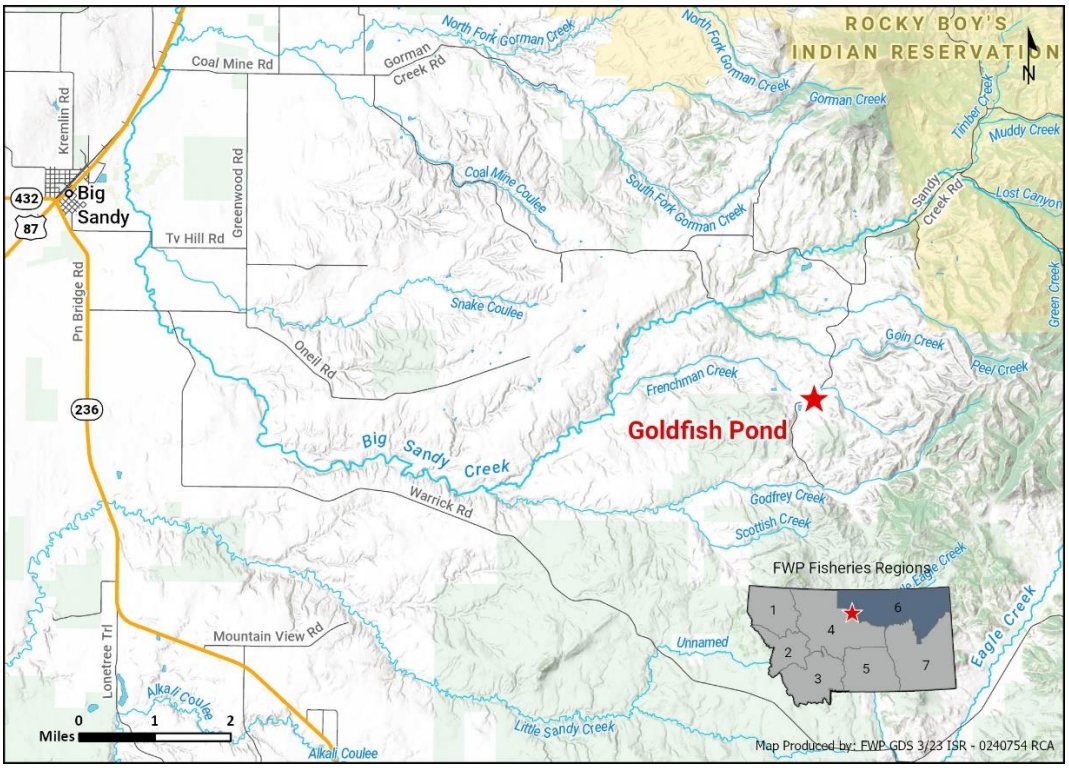

Figure 2. Project location and proximity to nearby watersheds.

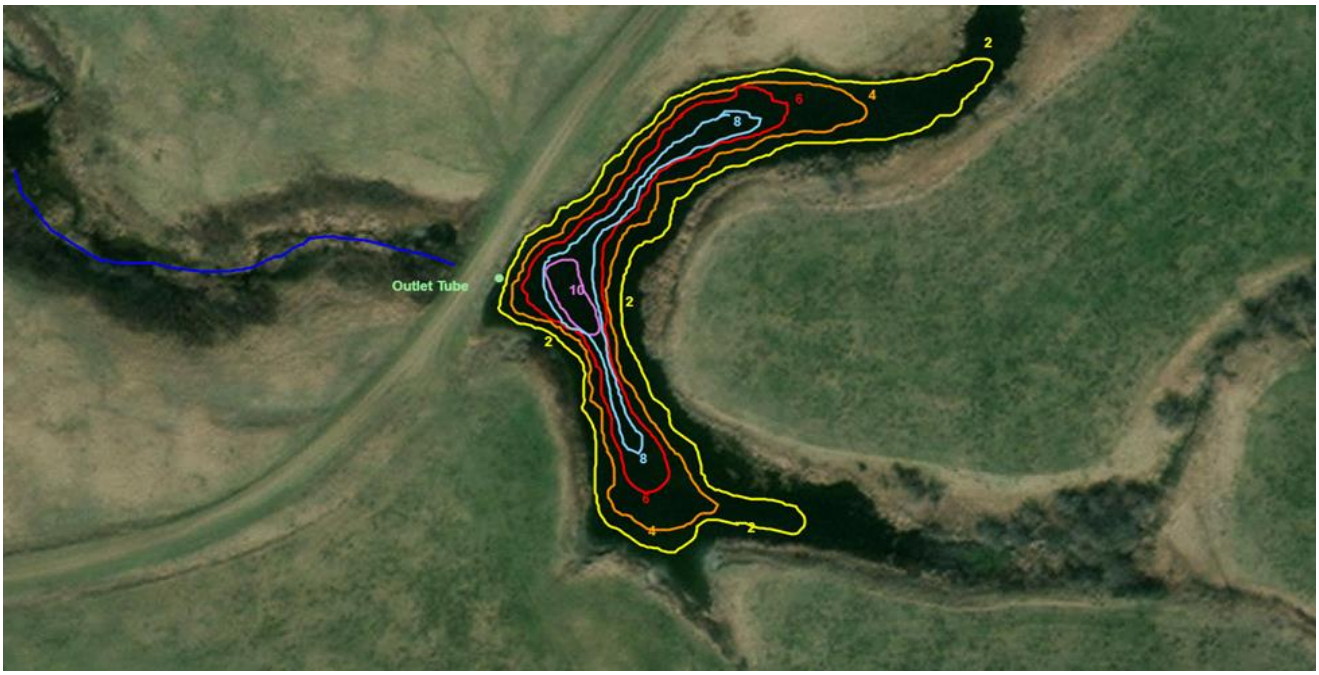

Figure 3. Location of known inlets and outlets as well as an approximate depth profile of the pond containing the goldfish population.

Figure 4. Project area showing extent of treated water.

III. Purpose and Need

The EA must include a description of the purpose and need or benefits of the proposed project. ARM 12.2.432(3)(b). Benefits of the proposed project refer to benefits to the resource, public, department, state, and/or other.

Project Purpose and Benefits:

(FWP) proposes to remove an illegally introduced goldfish population from a pond near the town of Big Sandy. FWP would use the piscicide rotenone to eliminate distribution of the invasive goldfish population to downstream locations. Once treated, no other species of native or non-native fish would be re-introduced by FWP into the pond, as no historic public fishery exists in the pond.

The estimated commencement date for the proposed project is August 1, 2023. This date may be pushed back later to ensure water conditions are conducive for treatment.

Benefits of the proposed project:

- The proposed project would eliminate non-native, invasive goldfish from the affected pond and thereby eliminate the risk of competition with native fish and the expansion of goldfish in the nearby and connected Big Sandy and Milk River watersheds.
- Rotenone is an effective piscicide at very low concentrations and mammals, birds, and other non-gill breathing organisms are not affected by consuming treated water or dead fish at concentrations used for fisheries management.

If FWP prepared a cost/benefit analysis before completion of the EA, the EA must contain the cost/benefit analysis or a reference to it. ARM 12.2.432(3)(b).

	Yes*	No
Was a cost/benefit analysis prepared for the proposed project?	☐	☒

* If yes, a copy of the cost/benefit analysis prepared for the proposed project is included in Attachment A to this Draft EA

IV. Other Agency Regulatory Responsibilities

FWP must list any federal, state, and/or local agencies that have overlapping or additional jurisdiction, or environmental review responsibility for the proposed project, as well as permits, licenses, and other required authorizations. ARM 12.2.432(3)(c).

A list of other required local, state, and federal approvals, such as permits, certificates, and/or licenses from affected agencies is included in **Table 1** below. **Table 1** provides a summary of state requirements but does not necessarily represent a complete and comprehensive list of all permits, certificates, or approvals needed. Rather, **Table 1** lists the primary state agencies with regulatory responsibilities, the applicable regulation(s) and the purpose of the regulation(s). Agency decision-making is governed by state and federal laws, including statutes, rules, and regulations, that form the legal basis for the conditions the proposed project must meet to obtain necessary permits, certificates, licenses, or other approvals. Further, these laws set forth the conditions under which each agency could deny the necessary approvals.

Table 1: Federal, State, and/or Local Regulatory Responsibilities

Agency	Type of Authorization (permit, license, stipulation, other)	Purpose
MT Department of Agriculture	Applicator License	Authority to apply piscicide
MT Department of Environmental Quality	General Pesticide Permit	Authority to apply piscicide

V. List of Mitigations, Stipulations

Mitigations, stipulations, and other *enforceable* controls required by FWP, or another agency, may be relied upon to limit potential impacts associated with a proposed Project. **Table 2** below lists and evaluates enforceable conditions FWP may rely on to limit potential impacts associated with the proposed Project. ARM 12.2.432(3)(g).

Table 2: Listing and Evaluation of Enforceable Mitigations Limiting Impacts

Are enforceable controls limiting potential impacts of the proposed action? If not, no further evaluation is needed.			**Yes ☐**	**No ☒**
If yes, are these controls being relied upon to limit impacts below the level of significance? If yes, list the enforceable control(s) below			**Yes ☐**	**No ☐**
Enforceable Control	**Responsible Agency**	**Authority (Rule, Permit, Stipulation, Other)**	**Effect of Enforceable Control on Proposed Project**	

VI. Alternatives Considered

In addition to the proposed Project, and as required by MEPA, FWP analyzes the "No-Action" alternative in this EA. Under the "No-Action" alternative, the proposed project would not occur. Therefore, no additional impacts to the physical environment or human population in the analysis area would occur. The “No Action” alternative forms the baseline from which the potential impacts of the proposed Project can be measured.

Under the No Action alternative, the illegally transplanted and invasive goldfish population living in the pond would not be eliminated and the risk of competition with native fish and the expansion of goldfish in the nearby and connected Big Sandy and Milk River watersheds would continue.

	Yes*	No
Were any additional alternatives considered and dismissed?	☒	☐

* If yes, a list and description of the other alternatives considered, but not carried forward for detailed review, is included below

Other Alternatives Not Carried Forward for Detailed Analysis:

- Mechanical suppression using a series of various nets and fish capturing methods was considered. However, this method has been attempted in the past on other goldfish populations and failed.

VII. Terms Used to Describe Potential Impacts on the Physical Environment and Human Population

The impacts analysis identifies and evaluates **direct**, **secondary**, and **cumulative impacts**.

- **Direct impacts** are those that occur at the same time and place as the action that triggers the effect.
- **Secondary impacts** "are further impacts to the human environment that may be stimulated or induced by or otherwise result from a direct impact of the action." ARM 12.2.429(18).
- **Cumulative impacts** "means the collective impacts on the human environment of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location or generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through pre-impact statement studies, separate impact statement evaluation, or permit processing procedures." ARM 12.2.429(7).

Where impacts are expected to occur, the impact analysis estimates the **extent, duration, frequency,** and **severity** of the impact. The duration of an impact is quantified as follows:

- **Short-Term**: impacts that would not last longer than the proposed project.
- **Long-Term**: impacts that would remain or occur following the proposed project.

The severity of an impact is measured using the following:

- **No Impact**: there would be no change from current conditions.
- **Negligible**: an adverse or beneficial effect would occur but would be at the lowest levels of detection.
- **Minor**: the effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.
- **Moderate**: the effect would be easily identifiable and would change the function or integrity of the resource.
- **Major**: the effect would irretrievably alter the resource.

Some impacts may require **mitigation**. As defined in ARM 12.2.429, mitigation means:

- Avoiding an impact by not taking a certain action or parts of a project;
- Minimizing impacts by limiting the degree or magnitude of a project and its implementation;
- Rectifying an impact by repairing, rehabilitating, or restoring the affected environment; or
- Reducing or eliminating an impact over time by preservation and maintenance operations during the life of a project or the time period thereafter that an impact continues.

FWP may, as an alternative to preparing an EIS, prepare an EA whenever the action is one that might normally require an EIS, but effects which might otherwise be deemed significant appear to be mitigable below the level of significance through design, or enforceable controls or stipulations, or both, imposed by the agency or other government agencies. For an EA to suffice in this instance, the agency must determine that all the impacts of the proposed action have been accurately identified, that they will be mitigated below the level of significance, and that no significant impact is likely to occur. The agency may not consider compensation for purposes of determining that impacts have been mitigated below the level of significance. ARM 12.2.430(4).

A list of any mitigation strategies including, but not limited to, design, enforceable controls or stipulations, or both, as applicable to the proposed project is included in **Section 6** above.

FWP must analyze impacts to the physical and human environment for each alternative considered. The proposed project considered the following alternatives:

- Alternative 1: No Action
- Alternative 2: Proposed project using rotenone

VIII. Determining the Significance of Impacts

If the EA identifies impacts associated with the proposed action FWP must determine the significance of the impacts. This determination forms the basis for FWP's decision as to whether it is necessary to prepare an environmental impact statement. FWP considered the criteria identified in **Table 3** below to determine the significance of each impact on the quality of the physical and human environment. ARM 12.2.431.

The significance determination is made by giving weight to these criteria in their totality. For example, impacts identified as moderate or major in severity may not be significant if the duration is short-term. However, moderate or major impacts of short-term duration may be significant if the quantity and quality of the resource is limited and/or the resource is unique or fragile. Further, moderate or major impacts to a resource may not be significant if the quantity of that resource is high or the quality of the resource is not unique or fragile.

Table 3: Determining the Significance of Impacts

	Criteria Used to Determine Significance
1	The **severity, duration, geographic extent,** and **frequency** of the occurrence of the impact **"Severity"** describes the density of the potential impact, while **"extent"** describes the area where the impact will likely occur, e.g., a project may propagate ten noxious weeds on a surface area of 1 square foot. Here, the impact may be high in severity, but over a low extent. In contrast, if ten noxious weeds were distributed over ten acres, there may be low severity over a larger extent. **"Duration"** describes the time period during which an impact may occur, while **"frequency"** describes how often the impact may occur, e.g., an operation that uses lights to mine at night may have frequent lighting impacts during one season (duration).
2	The probability that the impact will occur if the proposed project occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur
3	Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts
4	The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources and values

5	The importance to the state and to society of each environmental resource or value that would be affected
6	Any precedent that would be set as a result of an impact of the proposed project that would commit FWP to future actions with significant impacts or a decision in principle about such future actions
7	Potential conflict with local, state, or federal laws, requirements, or formal plans

IX. Alternative 1: No Action. Evaluation and Summary of Potential Impacts on the Physical Environment and Human Population

Under the "No Action" alternative, the proposed project would not occur. Therefore, no additional impacts to the physical or human environment in the analysis area would occur. The "No Action" alternative forms the baseline from which the potential impacts of the proposed Project can be measured.

Under the No Action alternative, the illegally transplanted and invasive goldfish population living in the pond would not be eliminated and the risk of competition with native fish and the expansion of goldfish in the nearby and connected Big Sandy and Milk River watersheds would continue.

X. Alternative 2: Proposed Project. Evaluation and Summary of Potential Impacts on the Physical Environment and Human Population

A. Evaluation and Summary of Potential Impacts on the Physical Environment

1. Terrestrial, Avian, and Aquatic Life and Habitats

Existing Environment/Baseline Conditions (No Action Alternative): Native fishes found in the project area include brassy minnow, fathead minnow, flathead chub, Iowa darter, lake chub, northern redbelly dace, white sucker, longnose dace, and western silvery minnow. Nonnative fishes introduced to the project area include rainbow trout, brook trout, northern pike, yellow perch, spottail shiner, and black bullhead.

Bird species common to the project area include mallard, gadwall, blue-winged teal, eared grebe, great blue heron, pheasant, sharptailed grouse, Hungarian partridge, red-winged blackbird, American crow, magpie, bald eagle, golden eagle, and red-tailed hawk.

Mammals common to the project area include muskrat, mink, beaver, meadow voles. Striped skunk, elk, white-tailed deer, mule deer, long-tailed weasel, coyote, and red fox also commonly forage in these habitats.

Amphibian and reptile species that occur near the pond: common garter snake, bull snake, prairie rattlesnake, northern leopard frog, tiger salamander, northern painted turtle.

Wet meadows/emergent palustrine are the dominant habitat type in the project area. Although some areas will contain grassland and woody dominated riparian habitat types, isolated stands of ponderosa pine are in the area as well. The pond is primarily surrounded by cattails and hay and pasture lands.

Direct Impacts: No significant adverse direct impacts to terrestrial, avian, and aquatic life and habitats would occur because of the proposed project. Equipment mobilization and the rotenone treatment process may displace resident terrestrial and avian species near the project site. Any direct impacts to

terrestrial and avian resources located near and using the pond ecosystem would be minor and short-term.

The chemical proposed for removal of fish uses rotenone as its active agent. Rotenone kills fish by interrupting the Krebs Cycle in individual cells. Rotenone is applied to the water and enters the fish through the gills. It is effective at very low concentrations with fish because it is readily absorbed into the bloodstream through the thin cell layer of the gills. Mammals, birds, and other non-gill breathing organisms do not have this rapid absorption route into the bloodstream and are not affected by consuming treated water or dead fish at concentrations used in fisheries management.

Fish: Rotenone is highly toxic to fish and other gill breathing organisms. The objective of this project is full eradication of goldfish.

Mammals: Ingestion of rotenone, either from drinking rotenone-treated water or from consuming dead fish or invertebrates from rotenone-treated waterbodies, are the likely routes of exposure for mammals. A substantial body of research has investigated the effects of ingested rotenone in terms of acute and chronic toxicity and other potential health effects. In general, mammals are not affected by rotenone at concentrations used to kill fish. Consuming treated water or rotenone killed fish does not affect mammals at fish killing concentrations because rotenone is neutralized by enzymatic action in their stomach and intestines (AFS 2002). Investigations examining the potential for acute toxicity from ingesting rotenone find that mammals would need to consume impossibly high amounts of rotenone-treated water or rotenone-killed fish to obtain a lethal dose. For example, a 22-pound dog would have to drink nearly 8,000 gallons of treated water within 24 hours or eat 660,000 pounds of rotenone-killed fish within a day to receive a lethal dose (CDFG 1994). A half-pound mammal would need to consume 12.5 mg of pure rotenone or drink 66 gallons of treated water for a lethal dose (Bradbury 1986). The effective concentration of rotenone to kill fish is 0.5 to 4.0 ppm, which is several orders of magnitude lower than concentrations that result in acute toxicity to mammals. Evaluations of mammals' potential exposure to rotenone from scavenging indicate that acute toxicity from ingesting rotenone-killed fish is highly unlikely (EPA 2007).

Birds: Birds have the potential to be exposed to rotenone through ingestion of treated water or scavenging dead fish and invertebrates. Like with mammals, rotenone breaks down rapidly within the gut of birds. Moreover, the concentrations of rotenone in waters treated for fisheries management are far below levels found to be toxic to birds. For example, ¼-pound bird would have to consume 100 quarts of treated water, or more than 40 pounds of fish and invertebrates, within 24 hours, for a lethal dose (Finlayson et al. 2000). The EPA concluded that exposure to rotenone, when applied according to label instructions, presented no unacceptable risks to wildlife (EPA 2007). In summary, this project would have no adverse effect birds that ingest water, dead fish, or dead invertebrates.

Reptiles: Reptiles, especially garter snakes, have potential to be exposed to rotenone treated water and could scavenge dead fish. The low concentration of rotenone in water and dead fish indicates reptiles would not experience toxic exposure to rotenone. Moreover, the reptilian gut is likely as efficient, or more efficient, at breaking down rotenone given the ability of reptiles to digest bone, hair, and exoskeletons, all of which are far less degradable than the rotenone molecule.

Amphibians: Amphibians are closely associated with water and have potential to be exposed to rotenone during treatment. In general, adult, air-breathing amphibians are not affected by rotenone at fish killing concentrations (Chandler and Marking 1982, Grisak et al. (2007) but the larvae would likely be affected (Grisak et al 2007, Billman et al 2011). Billman et al. (2011) conducted laboratory toxicity tests of the impacts of rotenone on Columbia spotted frogs and Boreal toads. They found significant mortality to the

larval stages of both species if they are exposed for 96 hours to 1 ppm CFT Legumine, but the mortality was less when exposed to lower dosages (0.5 ppm) or for a shorter duration (4 hours or less). In Yellowstone Park rotenone caused nearly 100% mortality in gill-breathing, amphibian tadpoles within 24 hours, but did not affect non-gill breathing metamorphs, juveniles, or adults. In the year(s) following, tadpole repopulation occurred at all water bodies treated with CFT Legumine and population levels were similar to or higher than, pre-treatment levels (Billman et al. 2012). Olsen (2017) found that a concentration of 1 ppm rotenone in the West Fork of Mudd Creek produced 100% mortality of tailed frog tadpoles, but concentrations of 0.75, 0.5 and 0.25 mortality averaged only 33%.

The potential to be exposed to rotenone varies by species. In mountain lakes, western tiger salamanders are present as gill-bearing adults, or axolotls. At lower elevations, western tiger salamanders exist as terrestrial adults, gilled larvae, and neotenic adults. Little information is available on toxicity of rotenone to western salamanders, although larval salamanders were presumed to be as vulnerable to rotenone as fish (Maxell and Hokit 1999). Nevertheless, observations of substantial numbers of neotenic forms in a reservoir a year after rotenone achieved eradication of fish suggests some resilience to rotenone (Jim Olsen, FWP personal communication). Moreover, western tiger salamanders are resilient to loss of a year class (Bryce Maxell, MNHP, personal communication). Frequently, the older year class of western tiger salamander larvae will cannibalize the newer generation. This strategy ensures the success of the older year class, resulting in staggered year class success. Insufficient information is available to draw strong conclusions on the potential for western tiger salamanders to be negatively affected by rotenone treatment. Projects should proceed if no long-term population level effects are expected based on tolerance to rotenone, existence of life-history strategies that allow for recovery, or when mitigative actions prevent long-term effects on western tiger salamander populations.

Like gill-bearing aquatic macroinvertebrates, frog and toad larvae are sensitive to rotenone, and exposure to rotenone at levels used to kill fish is acutely toxic to Columbian spotted frog larvae, Rocky Mountain tailed frog larvae, and western toad larvae (Grisak et al. 2007; Billman et al. 2012). Although tadpoles may be vulnerable to rotenone, at least some species may be up to 10 times more tolerant than fish (Chandler and Marking 1982). Treatment in late summer or early fall is a recommended practice to prevent effects on frogs and toads, as many are past the gilled life history stage (Grisak et al. 2007). Toads and frogs have considerable potential to recover from this short-term disturbance.

Variability of tolerance to rotenone among species of toad and frog is unknown; however, evidence for resilience to rotenone of other species suggests a general tolerance is possible. A study in Norway examined the response of lake-dwelling amphibians, the common frog (Rana temoraria) and common toad (Bufo bufo), to treatment with CFT Legumine (Amekleiv et al. 2015). These species were observed before and 1 year after treatment with rotenone, with adults, eggs, and tadpoles being present following treatment. They concluded CFT Legumine had little effect on these species.

Zooplankton and Invertebrates: Rotenone has greater initial effects on abundance and diversity of zooplankton than lotic invertebrates, given the longer period of exposure (Vinson et al. 2010). Biomass of zooplankton recovers rapidly; however, zooplankton community composition can take from 1 week to 3 years to return to pretreatment conditions (Beal and Anderson 1993: Vinson et al. 2010). Like stream-dwelling invertebrates, zooplankton have life history strategies that aid in rapid recolonization following disturbance (Havel and Shurin 2004). Recovery of zooplankton varies among taxa, with a dramatic bloom of early colonizers in the first couple of months (Anderson and Beal 1993). Other taxa take longer to recover, but the diversity and abundance can return as quickly as 6 months. Post-treatment monitoring in Devine Lake in the Bob Marshall Wilderness found invertebrates increased in number and slightly increased in diversity following a rotenone treatment (Rumsey et al. 1996). Schnee (2007b) chronicled two years of post-rotenone treatment monitoring for upper and lower Martin lakes near Olney, Montana that were treated with rotenone in 2005. He concluded that zooplankton density two years after the treatment were similar to pre-treatment densities, and in some cases higher. In a Norwegian lake, the zooplankton were sampled before application of CFT Legumine in 2014, immediately after treatment, and

1-year post-treatment in 2015 (Amekleiv et al. 2015). CFT Legumine had an initial negative effect on zooplankton, with none being detected immediately after treatment. The relative abundance of species of zooplankton changed from pre-treatment to 1-year post-treatment with some species comprising a much higher proportion of the zooplankton community. In addition, overall abundance of zooplankton increased considerably post-treatment. Removal of common roach (Rutilus rutilus), a species of minnow that preys on zooplankton, was attributed to greater post-treatment plankton biomass. Many taxa of zooplankton are capable of asexual reproduction, which favors rapid recolonization from existing eggs and zooplankters that survived treatment. Moreover, lakes have a long-term bank of dormant eggs that are resilient to a range of harsh conditions and provide many years of recruitment of zooplankton within a lake. In addition, wind, animals, and humans are primary agents of dispersal of dormant eggs. Based on these studies and characteristics of zooplankton communities, we would expect the plankton species composition in the unnamed pond to return to pre-treatment diversity and abundance within two years and the impacts of treatment with rotenone to be short-term and minor. Leaving dead fish within the pond likely provides the nutrients for recovery of invertebrates, and it's expected up to 70 % of the dead fish will not surface (Bradbury 1986).

Investigations into the effects of rotenone on benthic organisms indicate that rotenone can result in temporary reduction of gilled aquatic invertebrates in streams. Invertebrates that were most sensitive to rotenone also tended to have the highest rate of recolonization due to short life cycles (Engstrom-Heg et al. 1978). Although gill-respiring invertebrates are a sensitive group, many are far less sensitive to rotenone than fish (Schnick 1974; Chandler and Marking 1982; Finlayson et al. 2000). Due to their short life cycles (Anderson and Wallace 1984), strong dispersal ability (Pennack 1989), and generally high reproductive potential (Anderson and Wallace 1984), aquatic invertebrates are capable of rapid recovery from disturbance (Boulton et al. 1992; Matthaei et al. 1996). Following a piscicide treatment of a California stream, macroinvertebrates experienced a resurgence in numbers, with black fly larvae recovering first, followed by mayflies and caddisflies within six weeks after treatment (Cook and Moore 1969). Stoneflies returned to pre-treatment abundances by the following spring. Studies suggesting long-term reductions in biomass and presumed absence of species following piscicide treatment examined treatments with markedly higher concentrations and durations of piscicide exposure, with a subsequent treatment occurring within a month of the first treatment (Mangum and Madrigal 1999).

A study of response of benthic invertebrates in streams in Montana and New Mexico used a concentration and duration of CFT Legumine somewhat similar to the one that is proposed in this project (Skorupski 2011). In Cherry Creek and Specimen Creek, both in Montana, rotenone resulted in minimal effects on macroinvertebrates immediately after. Rotenone had a greater effect on benthos in streams in New Mexico. Regardless of the initial response, invertebrate communities recovered in all streams within a year. In Norway CFT Legumine was applied at of 0.5 ppm, which is lower than the 1 ppm typical of most piscicide projects in Montana and despite initial reductions in invertebrate abundance, most taxa had recolonized within a year (KJærstad et al. 2014).

Because piscicide has potential to alter abundance and species composition of aquatic invertebrates over the short-term, FWP's Piscicide Policy requires pre-treatment sampling of benthic, aquatic invertebrates (FWP 2012). Pre-treatment surveys of the unnamed pond were conducted in the summer and fall 2022.

Secondary Impacts: No significant adverse secondary impacts to terrestrial, avian, and aquatic life and habitats would be expected because of the proposed project. Based on previous studies (mentioned above and below), the project is expected to have short and long-term impacts to larval stage amphibians and the zooplankton and invertebrate communities that reside within the pond. It's anticipated that full population recovery of these aquatic species will occur within three years, post-project. FWP will conduct post-treatment surveys to assess the recovery of zooplankton, invertebrates, and amphibians for two consecutive years following the project. A reduction in zooplankton and invertebrates may temporarily displace animals that utilize them as forage to nearby populations in similar pond habitats.

Mammals: Chronic toxicity associated with availability of dead fish over time would not pose a threat to mammals, nor would other health effects be likely. Rats and dogs fed high levels of rotenone for 6 months to 2 years experienced only diarrhea, decreased appetite, and weight loss (Marking 1988). The unusually high treatment concentrations did not cause tumors or reproductive problems. Toxicology studies investigating potential secondary effects of rotenone exposure have found no evidence that it results in birth defects (HRI 1982), gene mutations (BRL 1982; Van Geothem et al. 1981), or cancer (Marking 1988). Rats fed diets laced with 10 to 1000 ppm of rotenone over a 10-day period did not experience any reproductive dysfunction (Spencer and Sing 1982). Therefore, chronic exposure to rotenone poses no threat to mammals consuming dead fish or treated water. Rotenone does not persist in the environment which also limits the chronic exposure to mammals or other terrestrial organisms. In the unnamed pond rotenone is expected to persist for less than a week, thus limiting the potential for chronic exposure.to mammals.

A temporary reduction in prey of aquatic origin has the potential to influence some mammals. The American mink is a piscivorous mammalian that could occur in the project area. Mink are opportunistic predators and scavengers, with fish and invertebrates comprising a portion of their diet. Therefore, the reduction in density of fish following treatment may displace mink to adjacent, untreated areas until fish populations recover. Nonetheless, as opportunists, American mink have flexibility to switch to other prey species and can disperse.

Other mammalian predators may experience short-term and minor consequences. Opportunistic black bears (Ursus americanus), raccoons (Procyon lotor), red foxes (Vulpes vulpes), coyotes (Canis latrans), and striped skunks (Mephitis mephitis) would likely consume dead fish immediately after piscicide treatment. The temporary reductions of aquatic prey, and the brief availability of dead fish, constitute short-term and minor effects on mammalian predators and scavengers. Therefore, no adverse secondary impacts to birds would be expected because of the proposed project.

Birds: Birds have the potential to be exposed to rotenone through ingestion of scavenged dead fish and invertebrates that were killed by the rotenone treatment. Like with mammals, rotenone breaks down rapidly within the gut of birds. Therefore, this project would have no adverse secondary impact on birds ingesting fish or invertebrates killed by rotenone.

Reptiles: Reptiles, especially garter snakes, have potential to be exposed to rotenone by scavenging dead fish. The low concentration of rotenone in dead fish indicates reptiles would not experience toxic exposure to rotenone. Moreover, the reptilian gut is likely as efficient, or more efficient, at breaking down rotenone given the ability of reptiles to digest bone, hair, and exoskeletons, all of which are far less degradable than the rotenone molecule. Therefore, no adverse secondary impacts to reptiles would be expected because of the proposed project.

Amphibians: In general, adult, air-breathing amphibians are not affected by rotenone at fish killing concentrations (Chandler and Marking 1982, Grisak et al., 2007). Variability of tolerance to rotenone among species of toad and frog is unknown; however, evidence for resilience to rotenone of other species suggests a general tolerance is possible. A study in Norway examined the response of lake-dwelling amphibians, the common frog (Rana temoraria) and common toad (Bufo bufo), to treatment with CFT Legumine (Amekleiv et al. 2015). These species were observed before and 1 year after treatment with rotenone, with adults, eggs, and tadpoles being present following treatment. They concluded CFT Legumine had little long-term effect on these species.

Zooplankton and Invertebrates: These organisms constitute the lowest end of the food web and as such play a critical role in the normal function and processes of a pond ecosystem. Rotenone has greater initial effects on abundance and diversity of zooplankton than lotic invertebrates, given the longer period of exposure (Vinson et al. 2010). Biomass of zooplankton recovers rapidly; however, zooplankton

community composition can take from 1 week to 3 years to return to pretreatment conditions (Beal and Anderson 1993: Vinson et al. 2010). Therefore, any secondary impacts associated with an initial reduction or elimination of these organisms would be short-term and moderate.

Cumulative Impacts: No significant adverse cumulative impacts to terrestrial, avian, and aquatic life and habitats would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

2. Water Quality, Quantity, and Distribution

Existing Environment/Baseline Conditions (No Action Alternative): Water in the pond is supplemented from a perennial spring located just upstream as well as local runoff events. The pond has an overflow trickle tube that diverts excess water downstream in Frenchmen Creek. Under dry conditions, stagnant pools develop on the north fork at two locations.

Direct Impacts: No significant adverse direct impacts to water quality, quantity, and distribution would be expected because of the proposed project. Water quality, quantity, and distribution will have minor, short-term direct impacts during the project. Distribution of water will be altered for short periods of time during drawdown of the pond.

Water Quality: The proposed project is designed to intentionally introduce a pesticide to surface water to remove invasive fish. The impacts to water quality would be short term and minor because rotenone would quickly and naturally degrade in the pond environment. Rotenone is an EPA registered piscicide safe to use for removal of unwanted fish, when handled properly. The concentration of rotenone proposed is 3.0-4.0 ppm in water but could be adjusted within the label-allowed limits based upon the results of on-site assays.

Several factors would influence rotenone's persistence and toxicity in the waters of the pond and associated tributaries. Warmer water temperatures promote deactivation. Rotenone has a half-life of 14 hours at 24 °C, and 84 hours at 0 °C (Gilderhus et al. 1986, 1988), meaning that half of the rotenone is deactivated and is no longer toxic in that time. As temperature and sunlight increase, so does deactivation of rotenone. Higher alkalinity (>170 mg/L) and pH (>9.0) also increase the rate of deactivation. Rotenone tends to bind to, and react with, organic molecules, and availability of organic matter substantially decreases the persistence of rotenone (Dawson et al. 1991). Dilution from groundwater inputs or tributary streams also contributes to deactivation of rotenone.

Secondary Impacts: No significant adverse secondary impacts to water quality, quantity, and distribution would be expected because of the proposed project.

Water Quality: Decomposition of rotenone-killed fish in lakes can result in temporary nutrient enrichment and algal blooms. In Washington, 9 of 11 water bodies treated with rotenone experienced an algal bloom shortly after treatment, and an estimated 70 % of the phosphorus of the fish stock would remain in the lake with decomposition of fish (Bradbury 1986). Nutrient loading from fish left to decay may temporarily contribute to aesthetically unappealing algal blooms; however, keeping the nutrients within the body of

water is beneficial. Fish left in a treated lake contribute towards food web recovery, as the nutrients contributed from their decomposing bodies stimulates phytoplankton production, which in turn feed zooplankton that recolonize treated lakes. Natural recolonization of zooplankton and other aquatic invertebrates result in re-establishment of the forage base for fish. Any changes or impacts to water quality resulting from decaying fish would be short-term and minor.

No contamination of groundwater is anticipated to result from this project. Because ground water leaving the unnamed pond must travel through bed sediments, soil, and gravel, and rotenone is known to bind readily with these substances, we do not anticipate any contamination of ground water (Skaar 2001; Engstrom-Heg 1971, 1978; Ware 2002). Rotenone moves only one inch in most soil types; the only exception would be sandy soils where movement is about three inches (Hisata 2002). In California, studies where wells were placed in aquifers adjacent to and downstream of rotenone applications have never detected rotenone, rotenolone, or any of the other organic compounds in the formulated products (CDFG 1994).

Case studies in Montana have concluded that rotenone movement through groundwater does not occur (FWP unpublished data). For example, at Tetrault Lake, Montana neither rotenone nor inert ingredients were detected in a nearby domestic well, which was sampled two and four weeks after applying 1.8 ppm rotenone to the lake. This well was chosen because it was down gradient from the lake and drew water from the same aquifer that fed and drained the lake. FWP has sampled wells and groundwater in several piscicide projects that removed fish from ponds, and no rotenone, or the inert ingredients of the selected formulation were detected in ponds ranging from 65 to 200 feet from the treated waters. Likewise, application of piscicide to streams has not resulted in contamination of neighboring wells or groundwater. In 2015 and 2016, Soda Butte Creek flowing through Cooke City and Silver Gate, Montana was treated with CFT Legumine. Wells drawing water from the same open aquifer as the treated stream were sampled during and after the treatment and all found to be free of rotenone.

The label states… "Do not use water treated with rotenone to irrigate crops or release within ½ mile upstream of an irrigation water intake in a standing body of water such as a lake, pond, or reservoir. For applications > 40 ppb or 0.04 ppm active rotenone (> 0. 8 ppm 5 % rotenone formulation) in waters with drinking water intakes or hydrologic connections to wells, 7 to 14 days before application, the certified applicator or designee under his/her direct supervision must notify to the party responsible for the public water supply, or individual private water users, to avoid consumption of treated water until: (1) active rotenone is < 0. 04 ppm as determined by analytical chemistry, (2) fish of the Salmonidae or Centrarchidae families can survive for 24 hours, (3) dilution with untreated water yields a calculation that active rotenone is < 0. 04 ppm, or (4) distance or travel time from the application sites demonstrates that active rotenone is < 0. 04 ppm. There are no known water intakes associated with this pond and the project will have no impact.

Water Quantity and Distribution: A perennial spring was identified in the south arm during pre-treatment surveys. FWP plans to drawdown the pond and concentrate the goldfish population, reducing the amount of rotenone needed to achieve the desired concentration, and contain all rotenone in the desired treatment area. The spring will be treated near the headwaters of the pond until it's determined the treatment was successful. It's anticipated the pond will detoxify naturally within one week, as the pond refills with untreated water via the spring. Potassium permanganate will be available onsite if the need to immediately neutralize the rotenone occurs.

Cumulative Impacts: No significant adverse cumulative impacts to water quality, quantity, and distribution would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher

concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

3. Geology

Existing Environment/Baseline Conditions (No Action Alternative): Several geological formations were identified near the project site, all of which are commonly found near the foothills of the southwest corner of the Bearpaw Mountains. These geological features include the Judith River Formation, Fort Union Formation, Mafic volcanic rock, and Felsic volcanic rock.

Direct Impacts: No significant adverse direct impacts to geology would be expected because of the proposed project. There are no unique geologic features located in the affected area that may be impacted by the proposed project. Therefore, no direct impacts would be expected because of the proposed project.

Secondary Impacts: No significant adverse secondary impacts to geology would be expected because of the proposed project. There are no unique geologic features located in the affected area that may be impacted by the proposed project. Therefore, no secondary impacts would be expected because of the proposed project.

Cumulative Impacts: No significant adverse cumulative impacts to geology would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

4. Soil Quality, Stability, and Moisture

Existing Environment/Baseline Conditions (No Action Alternative): The pond is located near the headwaters of Frenchmen Creek, surrounded by adjacent dryland hayfields and meadow. Both forks that drain into the pond are well vegetated and erosive soils were not identified during site visits. The pond maintains consistent water levels and the shorelines are comprised of cattails, rushes, and grasses with minor shoreline erosion occurring at several locations. The dam is constructed on a county road and no erosion was identified to the face or areas immediately downstream of the outlet (trickle tube).

Direct Impacts: No significant adverse direct impacts to soil quality, stability, and moisture would be expected because of the proposed project. Storage and movement of equipment materials to and from the project site and diverting water from the spring may result in short-term and negligible direct impacts to soils in an around the pond. Any impacts would be limited to the time-period when such equipment is in use and the pond water is being diverted. No other impacts to soil quality, stability, and moisture would be expected because of the proposed project.

Secondary Impacts: No significant adverse secondary impacts to soil quality, stability, and moisture would be expected because of the proposed project. Increases in flow are anticipated on Frenchmen Creek below the project site during drawdown of the pond. Potential secondary impacts to soils associated with increased flow may result in short-term impacts to downstream banks and riparian vegetation. However, any secondary impacts to soil stability during this action are expected to be minor, consistent with natural high-water events that typically occur in the spring, and short-term, lasting only as long as the pond draw-down period, which is expected to take one day.

Cumulative Impacts: No significant adverse cumulative impacts to water quality, quantity, and distribution would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

5. Vegetation Cover, Quantity, and Quality

Existing Environment/Baseline Conditions (No Action Alternative): The affected pond is directly surrounded by grass/hay lands, some wetland habitats also exist immediately upstream and around the pond. The larger local landscape is generally grasslands with localized stands of ponderosa pine present.

Direct Impacts: No significant adverse direct impacts to vegetation cover, quantity, and quality would be expected because of the proposed project. Staff presence and equipment used to move materials may result in minor direct impacts from trampling of vegetation around the pond and at locations immediately upstream and downstream. Rotenone does not affect plants at concentrations used to kill fish. Impacts from trampling vegetation are expected to be short-term and minor and should be fully healed within 1 growing season.

Secondary Impacts: No significant adverse secondary impacts to vegetation cover, quantity, and quality would be expected because of the proposed project. Rotenone does not affect plants at concentrations used to kill fish as plants lack the rapid absorption route fish possess (gills). Impacts from trampling vegetation are expected to be short-term and minor and should be fully healed within 1 growing season.

Cumulative Impacts: No significant adverse cumulative impacts to vegetation cover, quantity, and quality would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

6. Aesthetics

Existing Environment/Baseline Conditions (No Action Alternative): The pond is located on Frenchman Creek and is surrounded by hay land, native grasslands, and isolated stands of ponderosa pine. Riparian and wetland habitats are also present upstream and around the pond, a county road passes over the dam, adjacent to the pond.

Direct Impacts: No significant adverse direct impacts to the aesthetic nature of the affected area would be expected because of the proposed project. Some people may find the presence of staff and equipment needed to implement the proposed project aesthetically displeasing, as storage and movement of equipment materials to and from the project site may result in minor changes to the aesthetic nature of the affected area. However, any direct impacts to the aesthetic nature of the affected area would be short-term and minor, concurringly only when staff and equipment needed to move materials are present on-site. No further direct impacts to aesthetics would be expected because of the proposed project.

Secondary Impacts: No significant adverse secondary impacts to aesthetics would be expected because of the proposed project.

Cumulative Impacts: No significant adverse cumulative impacts to aesthetics would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

7. Air Quality

Existing Environment/Baseline Conditions (No Action Alternative): Air quality in the area affected by the proposed project is currently unclassifiable or in compliance with applicable National and Montana ambient air quality standards (NAAQS/MAAQS). No significant point-sources of air pollution exist in the area affected by the proposed project. Existing sources of air pollution in the area are limited and generally include unpaved county roads (fugitive dust source), vehicle exhaust emissions, and various agricultural practices (vehicle exhaust emissions and fugitive dust).

Direct Impacts: No significant adverse direct impacts to air quality would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. When the project is completed, no additional new air quality disturbance in the affected area would be expected. Fugitive dust and fossil fuel-powered vehicle/equipment exhaust emissions may adversely impact air quality in the affected area. Fugitive dust emissions may occur as a result of equipment moving over exposed ground. Fossil fuel powered equipment such as trucks, generators, pumps, and outboard motors may be used at times during the project and the combustion of fossil fuels to operate such equipment would result in emissions of regulated air pollutants. Any impacts to air quality associated with the operation and movement of equipment necessary to implement the proposed project would be short-term, consistent with existing impacts, and negligible.

Liquid rotenone contains aromatic solvents that make it soluble in water. The smell of these solvents,

primarily naphthalene, may last for several hours to several days, depending on air, water temperatures and wind direction. These relatively heavy organic compounds tend to sink (remain close to the ground) and move downwind. The California Department of Pesticide Regulation (CDPR 1998, cited in Finlayson et al. 2000) found no health effects from this smell. Applicators would have the greatest contact with these odors but would be protected because they would be wearing respirators as the product label recommends.

Secondary Impacts: None anticipated. No significant adverse secondary impacts to air quality would be expected because of the proposed project. Dead fish would result from this project and may cause objectionable odors. The occurrence of such objectionable odors would be mitigated by FWP through collecting and/or sinking dead fish in the pond. Most of the dead fish will naturally sink to the bottom and decay, complete decomposition would be expected in 1-2 weeks. No additional secondary air quality impacts would be expected because of the proposed project.

Cumulative Impacts: No significant adverse cumulative impacts to air quality would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

8. Unique, Endangered, Fragile, or Limited Environmental Resources

Existing Environment/Baseline Conditions (No Action Alternative): The presence of any animal and/or plant Species of Concern and any Threatened or Endangered species located within or using the affected area were assessed using the Montana Natural Heritage Program online tool which identified the following species: burrowing owl, northern redbelly dace, and Iowa darter.

Direct Impacts: No significant adverse direct impacts to unique, endangered, fragile, or limited resources that may be located in the affected area would be expected because of the proposed project. Pre-project surveys did not observe Northern redbelly dace or Iowa darter in the treatment area and these species are likely to occur in areas downstream, i.e., Big Sandy Creek. When completed, the proposed project is expected to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. Any impacts to unique, endangered, fragile, or limited environmental resources that may be located in the affected area would be long-term, beneficial, and minor.

Secondary Impacts: No significant adverse secondary impacts to unique, endangered, fragile, or limited environmental resources would be expected because of the proposed project.

Cumulative Impacts: No significant adverse cumulative impacts to unique, endangered, fragile, or limited environmental resources would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment,

potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

9. Historical and Archaeological Sites

Existing Environment/Baseline Conditions (No Action Alternative): Prior to implementation, the Montana Environmental Policy Act requires FWP conduct a cultural assessment to identify any historical and archaeological sites that may be located on the property affected by the proposed action/project. The assessment is conducted by either a qualified archaeologist or historian or both. The process for this assessment may include a cultural resource inventory and evaluation of cultural resources within or near the project area, in consultation with the State Historic Preservation Office. FWP also consults with all Tribal Historic Preservation Offices affiliated with each property in accordance with FWP's Tribal Consultation Guidelines. A review of the project area showed no previous recorded historical or archeological sites in the state Cultural Resource Database.

Direct Impacts: No significant impacts to historical and archaeological sites are anticipated. No significant adverse direct impacts to historic and archaeological sites would be expected because of the proposed project. Prior to implementation, FWP will perform a cultural resource inventory using a qualified historian or archaeologist. If historical or archaeological resources within or near the project area are recorded, they will be protected from adverse effects through adjustments to the project design or cancellation of the project if no design alternatives are available. If cultural resources are unexpectedly discovered during project implementation, FWP will cease implementation, and contact FWP's Heritage Program for further evaluation.

Secondary Impacts: No significant adverse secondary impacts to historic and archaeological sites would be expected because of the proposed project. Prior to implementation, FWP will perform a cultural resource inventory using a qualified historian or archaeologist. If historical or archaeological resources within or near the project area are recorded, they will be protected from adverse effects through adjustments to the project design or cancellation of the project if no design alternatives are available. If cultural resources are unexpectedly discovered during project implementation, FWP will cease implementation, and contact FWP's Heritage Program for further evaluation.

Cumulative Impacts: No significant adverse cumulative impacts to unique, endangered, fragile, or limited environmental resources would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

10. Demands on Environmental Resources of Land, Water, Air, and Energy

Existing Environment/Baseline Conditions (No Action Alternative): The project area consists of open hay fields and pasture lands. Current demands on the area resources come from local agricultural practices.

Direct Impacts: No significant adverse direct impacts to demands on the environmental resources of land, water, air, and energy would be expected because of the proposed project. As identified previously through the analyses of potential direct impacts to water quality, quantity, and distribution; soil quality, stability, and moisture; vegetation cover, quantity, and quality; and air quality, some direct impacts to the environmental resources of land, water, and air may occur because of the proposed project (see affected impacts analyses above). Any such impacts would be short- and long-term, beneficial and adverse, negligible and minor. No other impacts to the demands on environmental resources of land, water, air, and energy would be expected because of the proposed project.

Secondary Impacts: No significant adverse secondary impacts to demands on the environmental resources of land, water, air, and energy would be expected because of the proposed project. As identified previously through the analyses of potential secondary impacts to water quality, quantity, and distribution; soil quality, stability, and moisture; vegetation cover, quantity, and quality; and air quality, some secondary impacts to the environmental resources of land, water, and air may occur because of the proposed project (see affected impacts analyses above). Any such impacts would be short- and long-term, beneficial and adverse, negligible and minor. No other impacts to the demands on environmental resources of land, water, air, and energy would be expected because of the proposed project.

Cumulative Impacts: No significant adverse cumulative impacts to demands on the environmental resources of land, water, air, and energy would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

B. Evaluation and Summary of Potential Impacts of the Proposed Project on the Human Environment

1. Social Structures and Mores

Existing Environment/Baseline Conditions (No Action Alternative): The project area is surrounded by private lands. The county road that accesses the pond is primarily used to access two ranches near the project site, along with private hay and pasture lands. The county road ends approximately 2 miles south of the project area.

Direct Impacts: No significant direct impacts to social structures and mores in the affected area would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. The proposed project site is located on private lands with restricted public access and the proposed project would not change current land use or human activities in the affected area. Therefore, the proposed project would not directly impact any pre-project social structures, customs, values, and conventions in the affected area.

Secondary Impacts: No significant adverse secondary impacts to pre-project social structures and mores would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species.

Montanan's and those visiting the state to recreate generally hold high regard for native fish and managed nonnative gamefish species for the purposes of angling and as a valuable component of the affected ecosystems in which they reside. As such, protecting Montana's fish populations is deeply engrained in the customs and lifestyles of residents and visitors of Montana. Therefore, any secondary impacts to pre-project social structures, customs, values, and conventions in the affected area would be long-term and minor.

Cumulative Impacts: No significant adverse cumulative impacts to pre-project social structures and mores would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

2. Cultural Uniqueness and Diversity

Existing Environment/Baseline Conditions (No Action Alternative): The project area is surrounded by private lands. The county road that accesses the pond is primarily used to access two ranches near the project site, along with private hay and pasture lands. The county road ends approximately 2 miles south of the project area.

Direct Impacts: No significant adverse direct impacts to cultural uniqueness and diversity in the affected area would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. Because the proposed project site is located on private lands with restricted public access, no direct impact on the existing cultural uniqueness and diversity in the affected area would be expected.

Secondary Impacts: No significant adverse secondary impacts to cultural uniqueness and diversity would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. The proposed project site is located on private lands with restricted public access, and it is not expected the action would result in the relocation of people into or out of the affected area. Therefore, no secondary impacts to the existing cultural uniqueness and diversity of the affected area would be expected because of the proposed project.

Cumulative Impacts: No significant adverse cumulative impacts to cultural uniqueness and diversity would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

3. Access to and Quality of Recreational and Wilderness Activities

Existing Environment (No Action Alternative): Currently, all access to recreational or wilderness activities would require permission from private landowners. There are several sections of state land near the project area, but permission would be required to access these lands. The only public access is the county road (Coal Mine Rd.) that crosses the dam, this road ends approximately 2 miles past the project area.

Direct Impacts: Restricted access to the site may have minor, short-term effects on access. The impacts would be limited to the county road located near the site and minor traffic delays may occur during equipment mobilization and the treatment process to ensure safety of workers. No significant adverse direct impacts to access and quality of recreational and wilderness activities would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. The proposed project site is located on private lands with restricted public access. No designated wilderness areas are located within or near the proposed project site; therefore, no direct impacts to wilderness access or experience would occur because of the proposed project. Further, because the proposed project site is private, no impacts to existing recreational opportunities in the area would occur as a result of the proposed project. Therefore, no direct impacts to existing recreational or wilderness access and experience would be expected because of the proposed project.

Secondary Impacts: No significant adverse secondary impacts to access and quality of recreational and wilderness activities would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. The proposed project site is located on private lands with restricted public access. Montanan's and those visiting the state to recreate generally hold high regard for native fish and managed nonnative gamefish species for the purposes of angling and as a valuable component of the affected ecosystems in which they reside. As such, protecting Montana's native and managed non-native fish populations from potential impacts associated with the No Action alternative may impact future recreational fishing opportunities on affected water resources outside of the proposed project area, such as Frenchman Creek. Any such impacts would be long-term and minor.

No existing designated wilderness areas or planned future wilderness designations are located within or near the proposed project site; therefore, no secondary impacts to wilderness access or experience would occur because of the proposed project. Further, because the proposed project site is private, no secondary impacts to existing or future recreational opportunities in the area would occur as a result of the proposed project. Therefore, no secondary impacts to existing recreational or wilderness access and experience would be expected because of the proposed project.

Cumulative Impacts: No significant adverse cumulative impacts to access and quality of recreational and wilderness activities would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

4. Local and State Tax Base and Tax Revenue

Existing Environment/Baseline Conditions (No Action Alternative): No impact.

Direct Impacts: No significant adverse direct impacts to the local and state tax base and tax revenue would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. Any direct impacts to the local and state tax base and tax revenue would be short -term and negligible, lasting only as long as the proposed project.

Secondary Impacts: No significant adverse secondary impacts to the local and state tax base and tax revenue would be expected because of the proposed project. The proposed project site is located on private lands with restricted public access and no changes to land ownership would occur because of the proposed project. Further, the proposed project is not expected to change the taxable value of the affected or nearby properties. The proposed project would be expected to increase state and local tax revenues from the local sale of fuel, supplies and/or equipment to complete the project. Any secondary impacts to the local and state tax base and tax revenue would be short -term and negligible, lasting only as long as the proposed project.

Cumulative Impacts: No significant adverse cumulative impacts to the local and state tax base and tax revenue would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

5. Industrial, Commercial, and Agricultural Activities and Production

Existing Environment/Baseline Conditions (No Action Alternative): The project area is surrounded by private lands. The county road that accesses the pond is primarily used to access two ranches near the project site, along with private hay and pasture lands. The county road ends approximately 2 miles south of the project area.

Direct Impacts: No significant adverse direct impacts to industrial, agricultural, and commercial activity and production would be expected because of the proposed project. Direct impacts are anticipated to commercial, and/or agricultural activities and production during the project, these impacts will be short-term and constitute the potential for minor traffic delays on the affected county road during the dewatering and treatment process. FWP will work closely with the affected landowner to implement the project during a time that minimizes impacts to ranch schedules during the haying season. Any impacts to industrial, commercial, and agricultural activities and production would be short-term and minor, occurring only during affected operations and lasting only as long as the proposed project.

Secondary Impacts: No significant adverse secondary impacts to industrial, agricultural, and commercial activity and production would be expected because of the proposed project. The proposed project site is located on private lands and the intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. Therefore, the proposed project would not result in any long-term impacts to any nearby industrial, commercial, or agricultural activity or production.

Cumulative Impacts: No significant adverse cumulative impacts to industrial, agricultural, and commercial activity and production would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

6. Human Health and Safety

Existing Environment/Baseline Conditions (No Action Alternative): The project area is remote and surrounded by private lands. The county road that crosses the pond is primarily used to access two ranches near the project site, along with private hay and pasture lands. The county road near the project site receives minimal traffic and ends approximately 2 miles south of the project area.

Direct Impacts: No significant adverse direct impacts to human health and safety would be expected because of the proposed project. Public access near the project site will be restricted during the treatment and for up to 30-days post-treatment to ensure public safety. The persons applying the rotenone will be required to wear PPE and follow proper safety protocols during the project.

Human Health: Information examined here includes an analysis of human health risks relating to rotenone exposure (EPA 2007, Fisher 2007). Potential direct adverse impacts from the proposed project would include the potential for acute and chronic toxicity from direct exposure to rotenone during application. Acute toxicity refers to the adverse effects of a substance from either a single exposure or multiple exposures in a short space of time. Rotenone ranks as having high acute toxicity through oral and inhalation routes of exposure, and low acute toxicity through exposure to skin (EPA 2007). Acute toxicity would be applicable to undiluted rotenone formulation, with median lethal doses for rats ranging from 39. 5 mg/kg for female rats, and 102 mg/kg for male rats. A rat would need to ingest or inhale 0.04 g of undiluted rotenone for a lethal dose. As rotenone is 5% of most rotenone formulations, a 1 kg rat would have to consume 0.63mL of formulation to receive a lethal dose. Because the treatment area would be

closed to public access during rotenone application, exposure of humans to undiluted 5% rotenone formulation would not occur. Only personnel involved in the project who actively measure and apply the chemical could be directly exposed to rotenone. Oral or inhalation risks for these persons will be reduced or eliminated by proper use of personal protective equipment.

Chronic exposure is repeated oral, dermal, or inhalation of the target chemical (EPA 2007). In humans, chronic exposure is the length of time equivalent to approximately 10% of the life span. In piscicide treatments, exposure to rotenone lasts at most 1-4 days. Therefore, the only people likely to experience chronic exposure are the applicators who dispense diluted CFT Legumine over multiple projects. The use of protective eyewear, gloves, and dust/mist respirators (in the case of hand-held devices that dispense rotenone) is sufficient to protect worker health.

Table 4: Toxicological endpoints for rotenone (EPA 2007).

Exposure Scenario	**Dose Used in Risk Assessment, Uncertainty Factor (UF)**	**Level of Concern for Risk Assessment**	**Study and Toxicological Effects**
Acute Dietary (females 13-49)	NOAEL = 15 mg/kg/day UF = 1000 aRfD = 15 mg/kg/day = 0. 015 mg/kg/day 1000	Acute PAD = 0. 015 mg/kg/day	Developmental toxicity study in mouse (MRID 00141707, 00145049) LOAEL = 24 mg/kg/day based on increased resorptions
Acute Dietary (all populations)	An appropriate endpoint attributable to a single dose was not identified in the available studies, including the developmental toxicity studies.		
Chronic Dietary (all populations)	NOAEL = 0. 375 mg/kg/day UF = 1000 cRfD = 0. 375 mg/kg/day = 0. 0004 mg/kg/day 1000	Chronic PAD = 0. 0004 mg/kg/day	Chronic/oncogenicity study in rat (MRID 00156739, 41657101) LOAEL = 1. 9 mg/kg/day based on decreased body weight and food consumption in both males and females
Incidental Oral Short-term (1-30 days) Intermediate-term (1-6 months)	NOAEL = 0. 5 mg/kg/day	Residential MOE = 1000	Reproductive toxicity study in rat (MRID 00141408) LOAEL = 2. 4/3. 0 mg/kg/day [M/F] based on decreased parental (male and female) body weight and body weight gain
Dermal Short-, Intermediate-, and Long-Term	NOAEL = 0. 5 mg/kg/day 10% dermal absorption factor	Residential MOE = 1000 Worker MOE = 1000	Reproductive toxicity study in rat (MRID 00141408) LOAEL = 2. 4/3. 0 mg/kg/day
Inhalation Short-term (1-30 days) Intermediate-term (1-6 months)	NOAEL = 0. 5 mg/kg/day 100% inhalation absorption factor	Residential MOE = 1000 Worker MOE = 1000	[M/F] based on decreased parental (male and female) body weight and body weight gain
Cancer (oral, dermal, inhalation)	Classification; No evidence of carcinogenicity		

UF = uncertainty factor, NOAEL = no observed adverse effect level, LOAEL = lowest observed adverse effect level, aPAD = acute population adjusted dose, cPAD = chronic population adjusted does, RfD = reference dose, MOE = margin of exposure, NA = Not Applicable

As for evaluating the human chronic risk from exposure to rotenone treated water, the EPA acknowledges the four principal reasons for concluding there is a low risk. First, the rapid natural degradation of rotenone. Second, using active detoxification measures by applicators such as potassium permanganate. Next, properly following piscicide labels which prohibit the use near water intakes. Finally, proper signing, public notification or area closures which limit public exposure to rotenone treated water.

Aside from the rotenone itself, liquid formulations also consist of petroleum emulsifiers.

Finlayson et al. (2000) wrote regarding the health risks of these constituent elements:

"…the EPA has concluded that the use of rotenone for fish control does not present a risk of unreasonable adverse effects to humans and the environment. The California Environmental Protection Agency found that adverse impacts from properly conducted, legal uses of liquid rotenone formulations in prescribed fish management projects were nonexistent or within acceptable levels (memorandum from J. Wells, CDPR, to Finlayson, 3 August 1993). Liquid rotenone contains the carcinogen trichloroethylene (TCE). However, the TCE concentration in water immediately following treatment (less than 0.005 mg TCE per liter of water [5 ppb]) is within the level permissible in drinking water (0.005 mg TCE per liter of water, EPA 1980b). None of the other materials including xylenes, naphthalene, piperonyl butoxide, and methylnaphthalenes exceed any water quality criteria guidelines (based on lifetime exposure) set by the EPA (1980a, 1981a, 1993). Many of these materials in the liquid rotenone formulations (trichloroethylene, naphthalene, and xylene) are the same as those found in fuel oil and are present in waters everywhere because of the frequent use of outboard motors . . ."

California Department of Fish and Game (CDFG, 1994) calculated that the maximum expected level of these contaminants following a treatment level of 2 ppm formulation are TCE 1.1 ppb; toluene 84 ppb; xylenes 3.4 ppb; naphthalene 140 ppb.

Human Safety (Applicators): The occupational risk to humans is low if proper safety equipment and handling procedures are followed as directed by the product labels (EPA 2007). The major risks to human health from rotenone come from accidental exposure during handling and application. This is the only time when humans are exposed to concentrations that are greater than that needed to remove fish. To prevent accidental exposure to liquid formulated or powdered rotenone, the Montana Department of Agriculture requires applicators to be:

- Trained and certified to apply the pesticide in use.
- Equipped with the proper safety gear, which, in this case, includes respirator, eye protection, rubberized gloves, hazardous material suit.
- Have product labels with them during use.
- Contain materials only in approved containers that are properly labeled.
- Adhere to the product label requirements for storage, handling, and application.

Piscicide applicators become certified applicators upon passing examinations given by the Montana Department of Agriculture. Beyond this, FWP imposes additional requirements on its own employees through its internal piscicide policy (FWP 2017). An independent certified applicator must accompany each treatment, with "independent" status assigned to an individual who would not be expected to work on the treatment as part of their normal duties. Therefore, at least two Montana Department of Agriculture certified pesticide applicators would supervise and administer the project. Materials would be transported, handled, applied, and stored according to the label specifications to reduce the probability of human exposure or spill. Any threats to human health during application would be greatly reduced with proper use of safety equipment. There is an inhalation risk to ground applicators. To guard against this, ground applicators would be equipped with protective clothing, eye protection, and respirators.

Human Safety (Public): To reduce the potential for exposure of the public to rotenone during the proposed treatment, areas treated with rotenone would be closed to public access. Placard signs would be placed at access points informing the public of the closure and the presence rotenone treated waters. Personnel would be onsite to inform the public and escort them from the treatment area should they

enter. Rotenone treated waters would be contained to the proposed treatment areas by adding potassium permanganate to the pond or stream at the downstream end of the treatment area (fish barrier). Potassium permanganate would neutralize and deactivate any remaining rotenone before leaving the project area. The efficiency of the deactivation would be monitored using fish (the most sensitive species to the chemical) and a hand-held chlorine meter. Therefore, the potential for public exposure to rotenone treated waters at the time of application would be negligible.

No recreational access (e.g., wading, swimming, boating, and fishing) would be allowed within the treatment area while rotenone is being applied. At applications rates less than 1.8 ppm there is no risk to human health after the chemical has been applied to the water and once the rotenone is mixed recreational access can be restored. For lakes and ponds where rotenone is applied at 1.8 ppm or more, recreational access can be restored following a 24-hour bioassay demonstrating survival of sentinel fish or 14 days, whichever is less. The proposed treatment of the pond is at a concentration between 3.0-4.0 ppm. Access to the pond will be closed for up to 30 days, utilizing signing/posting potential access points around the pond. The aggregate risk to human health from food, water and swimming does not exceed the EPA level of concern (EPA 2007).

Recreationists in the area would likely not be exposed to the treatments because a temporary closure would preclude anyone from being in the area. Proper warning through news releases, signing the project area, road closure and administrative personnel in the project area should be adequate to keep unintended recreationists from being exposed to any treated waters. Dead fish would be collected, sunk in the pond, or removed from the site.

Therefore, no adverse direct impacts to the public would be expected because of the proposed project. Further, any potential adverse direct impacts to affected staff applying rotenone would be mitigated using best management practices (BMP), including the use of adequate personal protective equipment (PPE). Therefore, adverse direct impacts to applicators would not be expected and if exposure did occur any impacts would be short-term and minor due to the use of BMP, including PPE.

Secondary Impacts: No significant adverse secondary impacts to human health and safety would be expected because of the proposed project. Potential adverse secondary impacts from the proposed project would include the potential for human ingestion of fish killed by or contaminated with rotenone and ongoing ingestion of water directly treated with rotenone and/or downstream migration of rotenone into other water sources available to the public.

The analysis of dietary risks considered threats to the subgroup “females 13-49 years old” and examined exposure associated with consuming exposed fish and drinking treated surface water (EPA 2007). In determining potential exposure from consuming fish, the EPA used maximum residues in fish tissue. The concentrations of residue considered were conservative, meaning that they may have been an overestimate of the rotenone concentrations in muscle tissue, as they included unpalatable tissues, where concentrations may be higher. The EPA concluded that acute dietary exposure estimates resulted in a dietary risk below the EPA’s level of concern; therefore, consumption of fish killed by rotenone does not present an acute risk to the sensitive subgroup. The EPA analysis of acute dietary risk for both food and drinking water concluded.

> When rotenone is used in fish management applications, food exposure may occur when individuals catch and eat fish that either survived the treatment or were added to the water body (restocked) prior to complete degradation. Although exposure from this route is unlikely for the general U.S. population, some people might consume fish following a rotenone application. EPA used maximum residue values from a bioaccumulation study to estimate acute risk from consuming fish from treated water bodies. This estimate is considered conservative because the bioaccumulation study measured total residues in edible portions of fish including certain non-edible portions (skin, scales, and fins) where concentrations may be higher than edible portions (tissue) and the Agency assumed that 100% of fish consumption could come from rotenone

exposed fish. In addition, fish can detect rotenone's presence in water and, when possible, attempt to avoid the chemical by moving from the treatment area. Thus, for partial kill uses, surviving fish are likely those that have intentionally minimized exposure. Acute exposure estimates for drinking water considered surface water only because rotenone is only applied directly to surface water and is not expected to reach groundwater. The estimated drinking water concentration (EDWC) used in dietary exposure estimates was 200 ppb, the solubility limit of rotenone. The drinking water risk assessment is conservative because it assumes water is consumed immediately after treatment with no degradation and no water treatment prior to consumption.

Acute dietary exposure estimates result in dietary risk below EPA's level of concern. Generally, EPA is concerned when risk estimates exceed 100% of the acute population adjusted dose (aPAD). The exposure for the "females 13-49 years old" subgroup (0.1117 mg/kg/day) utilized 74% of the aPAD (0.015 mg/kg/day) at the 95th percentile (see Table 5). It is appropriate to consider the 95th percentile because the analysis is deterministic and unrefined. Measures implemented as a result of this RED will further minimize potential dietary exposure (see Section IV).

As for evaluating the human chronic risk from exposure to rotenone treated water, the EPA acknowledges the four principal reasons for concluding there is a low risk. First, the rapid natural degradation of rotenone. Second, using active detoxification measures by applicators such as potassium permanganate. Next, properly following piscicide labels which prohibit the use near water intakes. Finally, proper signing, public notification or area closures which limit public exposure to rotenone treated water.

Aside from the rotenone itself, liquid formulations also consist of petroleum emulsifiers.

Finlayson et al. (2000) wrote regarding the health risks of these constituent elements:

> "…the EPA has concluded that the use of rotenone for fish control does not present a risk of unreasonable adverse effects to humans and the environment. The California Environmental Protection Agency found that adverse impacts from properly conducted, legal uses of liquid rotenone formulations in prescribed fish management projects were nonexistent or within acceptable levels (memorandum from J. Wells, CDPR, to Finlayson, 3 August 1993). Liquid rotenone contains the carcinogen trichloroethylene (TCE). However, the TCE concentration in water immediately following treatment (less than 0.005 mg TCE per liter of water [5 ppb]) is within the level permissible in drinking water (0.005 mg TCE per liter of water, EPA 1980b). None of the other materials including xylenes, naphthalene, piperonyl butoxide, and methylnaphthalenes exceed any water quality criteria guidelines (based on lifetime exposure) set by the EPA (1980a, 1981a, 1993). Many of these materials in the liquid rotenone formulations (trichloroethylene, naphthalene, and xylene) are the same as those found in fuel oil and are present in waters everywhere because of the frequent use of outboard motors . . ."

California Department of Fish and Game (CDFG, 1994) calculated that the maximum expected level of these contaminants following a treatment level of 2 ppm formulation are TCE 1.1 ppb; toluene 84 ppb; xylenes 3.4 ppb; naphthalene 140 ppb.

Therefore, no adverse secondary impacts to the public would be expected because of the proposed project. Further, any potential adverse secondary impacts to affected staff applying rotenone would be mitigated using BMP, including the use of adequate PPE. Therefore, adverse secondary impacts to applicators would not be expected because of the proposed project.

Cumulative Impacts: No significant adverse cumulative impacts to pre-project social structures and mores would be expected because of the proposed project. The cumulative impacts analysis evaluates the

cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

7. Quantity and Distribution of Employment

Existing Environment/Baseline Conditions (No Action Alternative): No impact.

Direct Impacts: No significant adverse direct impacts to the quantity and distribution of employment in the affected area would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. No direct impacts to the local quantity and distribution of employment would be expected because of the proposed project as existing government staff would be used to complete the work, this type of work constitutes typical duties of affected staff, and no new staff or contracted work would be required for the proposed project. Therefore, no direct impacts to the quantity and distribution of employment in the affected area would be expected because of the proposed project.

Secondary Impacts: No significant adverse secondary impacts to the quantity and distribution of employment in the affected area would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. Existing government staff would be used to conduct the work and, when completed, no additional staffing would be required. Therefore, no secondary impacts to the local quantity and distribution of employment would be expected because of the proposed project

Cumulative Impacts: No significant adverse cumulative impacts to the quantity and distribution of employment in the affected area would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

8. Density and Distribution of Human Population and Housing

Existing Environment/Baseline Conditions (No Action Alternative): The project area is surrounded by private lands. The county road that accesses the pond is primarily used to access to ranches near the project site, along with private hay and pasture lands. The county road ends approximately 2 miles south of the project area.

Direct Impacts: No significant adverse direct impacts to the density and distribution of human population and housing in the affected area would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. Existing government staff would be used to accomplish the work as part of their normal job duties. Therefore, implementation of the proposed project would not require or result in the movement of existing or new population into or out of the affected area and no direct impacts to the density and distribution of human population and housing in the affected area would be expected because of the proposed project.

Secondary Impacts: No significant adverse secondary impacts to the density and distribution of human population and housing in the affected area would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species. Existing government staff would be used to accomplish the work as part of their normal job duties. Therefore, implementation of the proposed project would not require or result in the movement of existing or new population into or out of the affected area and no secondary impacts to the density and distribution of human population and housing in the affected area would be expected because of the proposed project.

Cumulative Impacts: No significant adverse cumulative impacts to density and distribution of human population and housing would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

9. Demands for Government Services

Existing Environment/Baseline Conditions (No Action Alternative): If this natural reproducing population of invasive goldfish remained in the pond and began to disperse downstream into Big Sandy Creek and eventually the Milk River, an increasing demand for governmental services would likely occur. These services would include increased sampling to monitor population spread, a potential larger scale removal effort, and other mitigating actions to restrict their population growth and dispersal.

Direct Impacts: No significant adverse direct impacts to the demands for government services in the affected area would be expected because of the proposed project. The intent of the proposed project is the elimination of an invasive and illegally transplanted population of goldfish from the pond to prevent adverse impacts to the distribution and densities of downstream populations of several native prairie fish and nonnative gamefish species and, when completed, would not further impact demands for government services. The proposed project would use existing government staff to complete the work as part of their normal duties. No additional demands for government services would be expected because of the proposed project. Therefore, any impacts would be short -term and negligible, lasting only as long as the proposed project.

Secondary Impacts: No significant adverse secondary impacts to the demands for government services in the affected area would be expected because of the proposed project. Following completion of the proposed project FWP staff would conduct short-term monitoring. This would include annual monitoring of invertebrates, reptiles, and amphibians for up to two years to document their response and recovery at the project site.

Cumulative Impacts: No significant adverse cumulative impacts to demands for government services would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

10. Locally Adopted Environmental Plans and Goals

Existing Environment/Baseline Conditions (No Action Alternative): No impacts.

Direct Impacts: No significant adverse direct impacts to locally adopted environmental plans and goals would be expected because of the proposed project. The proposed project would take place on private land. FWP is unaware of any locally adopted environmental plans or goals that may be impacted by the proposed project. Therefore, no significant adverse direct impacts to locally adopted environmental plans and goals would be expected because of the proposed project.

Secondary Impacts: No significant adverse secondary impacts to locally adopted environmental plans and goals would be expected because of the proposed project. The proposed project would take place on private land. FWP is unaware of any locally adopted environmental plans or goals that may be impacted by the proposed project. Therefore, no significant adverse secondary impacts to locally adopted environmental plans and goals would be expected because of the proposed project.

Cumulative Impacts: No significant adverse cumulative impacts to locally adopted environmental plans and goals would be expected because of the proposed project. The cumulative impacts analysis evaluates the cumulative impact of the proposed action with consideration for any past, present, or future (known) state actions related to the proposed action by location or generic type. FWP has not previously treated the affected pond with rotenone. However, if the initial rotenone treatment is unsuccessful in eradicating the invasive goldfish population from the pond, a second treatment, potentially using a higher concentration of rotenone, may be necessary. FWP is unaware of any other past, present, or future related actions in the affected area and is confident the initial rotenone treatment will eliminate the affected goldfish population. Therefore, no cumulative impacts would be expected because of the proposed project.

XI. Private Property Impact Analysis (Takings)

The 54th Montana Legislature enacted the Private Property Assessment Act, now found at § 2-10-101. The intent was to establish an orderly and consistent process by which state agencies evaluate their proposed projects under the "Takings Clauses" of the United States and Montana Constitutions. The Takings Clause of the Fifth Amendment of the United States

Constitution provides: "nor shall private property be taken for public use, without just compensation." Similarly, Article II, Section 29 of the Montana Constitution provides: "Private property shall not be taken or damaged for public use without just compensation..."

The Private Property Assessment Act applies to proposed agency projects pertaining to land or water management or to some other environmental matter that, if adopted and enforced without due process of law and just compensation, would constitute a deprivation of private property in violation of the United States or Montana Constitutions.

The Montana State Attorney General's Office has developed guidelines for use by state agencies to assess the impact of a proposed agency project on private property. The assessment process includes a careful review of all issues identified in the Attorney General's guidance document (Montana Department of Justice 1997). If the use of the guidelines and checklist indicates that a proposed agency project has taking or damaging implications, the agency must prepare an impact assessment in accordance with Section 5 of the Private Property Assessment Act.

Table 5: Private Property Assessment (Takings)

	Yes	No
Is FWP regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no further analysis is required	☐	☒
Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required.	☐	☐
Does FWP have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required	☐	☐
If so, FWP must determine if there are alternatives that would reduce, minimize, or eliminate the restriction on the use of private property, and analyze such alternatives. Have alternatives been considered and/or analyzed? If so, describe below:	☐	☐

PRIVATE PROPERTY ASSESMENT ACT (PPAA)			
Does the Proposed Action Have Takings Implications under the PPAA?	**Question #**	**Yes**	**No**
Does the project pertain to land or water management or environmental regulations affecting private property or water rights?	1	☐	☒
Does the action result in either a permanent or an indefinite physical occupation of private property?	2	☐	☒
Does the action deprive the owner of all economically viable uses of the property?	3	☐	☒
Does the action require a property owner to dedicate a portion of property or to grant an easement? (If answer is NO, skip questions 4a and 4b and continue with question 5.)	4	☐	☒
Is there a reasonable, specific connection between the government requirement and legitimate state interest?	4a	☐	☐
Is the government requirement roughly proportional to the impact of the proposed use of the property?	4b	☐	☐
Does the action deny a fundamental attribute of ownership?	5	☐	☒
Does the action have a severe impact of the value of the property?	6	☐	☒
Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public general? (If the answer is NO, skip questions 7a-7c.)	7	☐	☒
Is the impact of government action direct, peculiar, and significant?	7a	☐	☐

Has the government action resulted in the property becoming practically inaccessible, waterlogged, or flooded?	7b	☐	☐
Has the government action diminished property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?	7c	☐	☐
Does the proposed action result in taking or damaging implications?		☐	☒
Taking or damaging implications exist if **YES** is checked in response to Question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if **NO** is checked in response to question 4a or 4b.			
If taking or damaging implications exist, the agency must comply with MCA § 2-10-105 of the PPAA, to include the preparation of a taking or damaging impact assessment. Normally, the preparation of an impact assessment will require consultation with agency legal staff.			
Alternatives: The analysis under the Private Property Assessment Act, §§ 2-10-101-112, MCA, indicates no impact. FWP does not plan to impose conditions that would restrict the regulated person's use of private property to constitute a taking.			

XII. Public Participation

Scoping

Scope is the full range of issues that may be affected if an agency implements a proposed action or alternatives to the proposed action. The scope of the environmental review is described through a definition of those issues, a reasonable range of alternatives considered, a description of the impacts to the physical and human environments, and a description of reasonable mitigation measures that would ameliorate the impacts. Scoping is the process used to identify all issues that are relevant to the proposed action.

Depending on the level of impact associated with a proposed action, the scoping process may include a request for public participation in the identification of issues.

Because FWP determined the proposed action will result in limited environmental impact, and little public interest has been expressed, FWP determined the proposed project did not meet the criteria for a public scoping meeting. Therefore, a public scoping meeting was not held for the proposed action.

Public Review of Environmental Assessments

The level of analysis in an EA will vary with the complexity and seriousness of environmental issues associated with a proposed action. The level of public interest will also vary. FWP is responsible for adjusting public review to match these factors (ARM 12.2.433(1)). For the proposed project, FWP determined the following public notice strategy will provide an appropriate level of public review:

- An EA is a public document and may be inspected upon request. Any person may obtain a copy of an EA by making a request to FWP.
- Public notice will be served on the Montana Fish, Wildlife and Parks website at: https://fwp.mt.gov/public-notices.
- Public notice will be served on the Montana Environmental Quality Council's MEPA Document List website at: https://leg.mt.gov/mepa/search/.
- As applicable, copies will be distributed to neighboring landowners to ensure their knowledge of the proposed project and opportunity for review and comment on the proposed action.
- FWP maintains a mailing list of persons interested in a particular action or type of action. FWP will notify all interested persons and distribute copies of the EA to those persons for review and comment (ARM 12.2.433(3)).
- FWP will issue public notice in the following newspaper periodical(s) on the date(s) indicated.

Table 6: Public Notice – Newspaper/Periodical and Date Published

Newspaper / Periodical	Date(s) Public Notice Issued
Havre Daily News	06/07/2023
Big Sandy Mountaineer	06/12/2023

Public notice announces availability of the Draft EA for public review, summarizes the proposed project, identifies the time-period available for public comment, and provides direction for submitting comments.

- **Duration of Public Comment Period:** The public comment period begins on the date of publication of legal notice in area newspapers (see above). Written or e-mailed comments will be accepted until 5:00 p.m., Mountain Time, on the last day of public comment, as listed below:

  Length of Public Comment Period: 30 days

  Public Comment Period Begins: 6-7-2023

  Public Comment Period Ends: 7-6-2023

Comments must be addressed to the FWP contact listed below.

- **Where to Mail or Email Comments on the Draft EA:**

  Name: CODY NAGEL

  Email: cnagel@mt.gov

  Mailing Address:

  2165 Hwy 2 East

  Havre, MT 59501

XIII. Recommendation for Further Environmental Analysis

NO further analysis is needed for the proposed action	☒
FWP must conduct **EIS** level review for the proposed action	☐

XIV. EA Preparation and Review

	Name	Title
EA prepared by:	Cody Nagel	Fisheries Biologist
EA reviewed by:	Eric Merchant	MEPA Coordinator

Appendix A - Literature Cited

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